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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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John Christian Fluke

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EXAMINER

KISS, ERIC B

ART UNIT

PAPER NUMBER

2192

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/607,074	Applicant(s) FLUKE ET AL.	
	Examiner Eric B. Kiss	Art Unit 2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the supplemental appeal brief filed on May 3, 2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Response to Arguments

2. Applicant's arguments with respect to claims 1-57 have been considered but are moot in view of the new ground(s) of rejection.

Applicant failed to provide any argument in the supplemental appeal brief against the rejections of claims 10-14, 29-33, and 48-52 under 35 U.S.C. § 103(a) as being unpatentable

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over *King* in view of *Wygodny* (claims 10, 29, and 47) and *King* in view of *Wygodny* and *Bugg* (claims 11-14, 30-33, and 49-52). Accordingly, these rejections are maintained. Additionally, the previously implicit rejection of claims 9, 28, and 47 under § 103(a) as being unpatentable over *King* in view of *Wygodny* is explicitly recited below.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 20-57 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Descriptive material can be characterized as either “functional descriptive material” or “nonfunctional descriptive material.” In this context, “functional descriptive material” consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of “data structure” is “a physical or logical relationship among data elements, designed to support specific data manipulation functions.” The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) “Nonfunctional descriptive material” includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of “descriptive material” are nonstatutory when claimed as descriptive material *per se*. *In re Warmerdam*, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1760 (claim to a data structure *per se* held nonstatutory).

Data structures not claimed as embodied in computer-readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. *See, e.g., In re Warmerdam*, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Similarly, computer programs claimed as computer listings *per se*, *i.e.*, the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. *See In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035.

Claim 20-38 recite a "system" comprising a series of means that can be reasonably interpreted in view of the specification as software, *per se*. The claims do not define any structural and functional interrelationships between the software elements and a computer that

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would permit the described functionality to be realized when the software is employed as a computer component. Accordingly, claims 20-38 appear to merely set forth functional descriptive material *per se*, which is nonstatutory.

Claims 39-57 set forth computer readable storage media having computer readable instructions. Applicant's specification defines such computer-readable storage media as embracing electromagnetic, infrared, or propagation media embodiments, reasonably interpreted to include signals encoded with functional descriptive material. (Specification p. 4, line 29, through p. 5, line 3.) The Office's current position is that claims involving signals encoded with functional descriptive material do not fall within any of the categories of patentable subject matter set forth in 35 U.S.C. § 101, and such claims are therefore ineligible for patent protection. *See* 1300 OG 142 (November 22, 2005) (in particular, see Annex IV(c)).

Further, applicant's specification suggests that the computer readable media, "could even be paper or another suitable medium upon which the program is printed" (Specification p. 5, lines 8-13.) Such printed embodiments are more closely related to non-functional descriptive material (*e.g.*, literary works and compilations or mere arrangements of data) than functional descriptive material (*e.g.*, computer programs that impart functionality when employed as a computer component). Such non-functional descriptive material is nonstatutory.

5. To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. §101 (non-statutory) above are further rejected as set forth below in anticipation of Applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1-3, 6, 9-12, 15-17, 20-22, 25, 28-31, 34-36, 39-41, 44, 47-50, and 53-55 are rejected under 35 U.S.C. 102(a) as being anticipated by the DSP/BIOS firmware described in the following documents (collectively “the DSP/BIOS documents”), *see* MPEP § 2131.01:

- Thom Maughan and Kathryn Rafac, “DSP/BIOS by Degrees: Using DSP/BIOS Features in an Existing Application,” Texas Instruments, Application Report SPRA591, December 1999, pp. 1-51 (hereinafter “[MauR1999]”);
- “TMS320C54x DSP/BIOS Application Programming Interface (API) Reference Guide,” Texas Instruments, Literature Number: SPRU40A, May 2000, pp. i, ii, and “1-118” through “1-120” (hereinafter “[API2000]”);
- “TMS320C54x DSP/BIOS User’s Guide,” Texas Instruments, Literature Number: SPRU326C, May 2000, pp. i, ii, and “3-1” through “3-31” (hereinafter “[UG2000]”);
- “TMS320C6000 DSP/BIOS User’s Guide,” Texas Instruments, Literature Number: SPRU303, May 1999, pp. i, ii, and “6-38” through “6-50” (hereinafter “[UG1999]”); and
- Henry Yiu, “Understanding Basic DSP/BIOS Features,” Texas Instruments, Application Report SPRA653, April 2000, pp. 1-14 (hereinafter “[Yiu2000]”).

As per claim 1, the DSP/BIOS firmware is disclosed as:

invoking a print function (*LOG_printf()*; see, e.g., [UG1999] at “6-47” through “6-49”) with a format argument that is a pointer to a memory location in an address space of the application (the format string address (a pointer) is put in register *b6* and used as the third value for a call to *LOG_event()*; see, e.g., *Id.* at “6-46” through “6-48”) and at least one data argument from the application (for example, *arg0* and *arg1*, used in a similar manner to the data arguments of the C-language *printf()* function; *Id.* at “6-47” and “6-48”);

saving the format argument and the at least one data argument in a deferred trace data buffer (see, e.g., *Id.* at “6-47” (“LOG_printf copies a sequence number, the format address, and two arguments to the specified log’s buffer”));

returning to the application that invoked the print function, then processing the deferred trace buffer to print the at least one data argument (log information generated by the LOG_printf operation is captured in real time while the target program executes. See, e.g., [UG2000] at “3-5”. The host processes the format string and arguments of the LOG_printf operation to display (print) the formatted data. See, e.g., *Id.* at “3-5” and “3-6”).

As per claim 2, the DSP/BIOS firmware is further disclosed as:

retrieving the format argument and the at least one data argument from the deferred trace data buffer (see, e.g., [UG2000] at “3-5” and “3-6”, describing the processing (on the host) of the log data and printing the corresponding formatted data);

formatting the at least one data argument based on the format argument (see, e.g., *Id.* (as described above)); and

printing the formatted at least one data argument (see, e.g., *Id.* (as described above)).

As per claim 3, the DSP/BIOS firmware is further disclosed as:

determining if the format argument specifies a character string conversion and printing an address of a respective one of the at least one data argument that corresponds to the character string conversion (see, e.g., [UG1999] at “6-48” (describing the display of a string argument as its hexadecimal address)).

As per claim 6, the DSP/BIOS firmware is further disclosed as:

the step of saving the format argument and the at least one data argument in the deferred trace data buffer and the step of processing the deferred trace data buffer to print the at least one data argument being performed in different execution threads (the saving of the format argument (into a 4-word log message) is carried out on the DSP and the processing and printing are carried out on the host. See, e.g., [UG2000] at “3-5” and “3-6”).

As per claim 9, the DSP/BIOS firmware is disclosed as:

invoking a print function (*LOG_printf()*; see, e.g., [UG1999] at “6-47” through “6-49”) with a format argument that is a pointer to a memory location in an address space of the application from the application (the format string address (a pointer) is put in register *b6* and used as the third value for a call to *LOG_event()*; see, e.g., *Id.* at “6-46” through “6-48”);

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saving the format argument in a deferred trace data buffer (see, e.g., *Id.* at “6-47” (“LOG_printf copies a sequence number, the format address, and two arguments to the specified log’s buffer”));

returning to the application that invoked the print function, then processing the deferred trace data buffer to print the format argument (log information generated by the LOG_printf operation is captured in real time while the target program executes. See, e.g., [UG2000] at “3-5”. The host processes the format string and arguments of the LOG_printf operation to display (print) the formatted data. See, e.g., *Id.* at “3-5” and “3-6”).

As per claim 10, the DSP/BIOS firmware is further disclosed as:

saving the pointer in the deferred trace data buffer (the format string address (a pointer) is put in register *b6* and used as the third value for a call to *LOG_event()*; see, e.g., [UG1999] at “6-46” through “6-48”; *Id.* at “6-47” (“LOG_printf copies a sequence number, the format address, and two arguments to the specified log’s buffer”)).

As per claim 11, the DSP/BIOS firmware is further disclosed as:

processing the deferred trace data buffer to print a contents of the memory location in the address space of the application that is referenced by the pointer (The host processes the format string and arguments of the LOG_printf operation to display (print) the formatted data. See, e.g., *Id.* at “3-5” and “3-6”).

As per claim 12, the DSP/BIOS firmware is further disclosed as:

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the step of saving the pointer in the deferred trace data buffer and the step of processing the deferred trace data buffer to print the contents of the memory location in the address space of the application that is referenced by the pointer being performed in different execution threads (the saving of the format argument (into a 4-word log message) is carried out on the DSP and the processing and printing are carried out on the host. See, e.g., [UG2000] at “3-5” and “3-6”).

As per claim 15, the DSP/BIOS firmware is further disclosed as:

saving a contents of the memory location in the address space of the application that is referenced by the pointer in the deferred trace data buffer (the format string address (a pointer) is put in register *b6* and used as the third value for a call to *LOG_event()*; see, e.g., [UG1999] at “6-46” through “6-48”; *Id.* at “6-47” (“LOG_printf copies a sequence number, the format address, and two arguments to the specified log’s buffer”); the Message Log is able to generate the appropriate output based on a string passed to LOG_printf. *Id.* at “6-48”).

As per claims 16 and 17, see the disclosure applied above to claims 11 and 12.

As per claims 20-22, 25, 28-31, and 34-36, these are system versions of the claimed methods discussed above (claims 1-3, 6, 9-12, and 15-17, respectively). The DSP/BIOS firmware is further disclosed as being implemented as a system (see, e.g., [Yiu2000] at 1), and all other limitations have been addressed as set forth above (see the discussion of claims 1-3, 6, 9-12, and 15-17).

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As per claims 39-41, 44, 47-50, and 53-55, these are computer readable storage media versions of the claimed methods discussed above (claims 1-3, 6, 9-12, and 15-17, respectively). The DSP/BIOS firmware is further disclosed as being implemented using such computer readable storage media (see, e.g., [Yiu2000] at 1, describing the implementation of software readable by a DSP), and all other limitations have been addressed as set forth above (see the discussion of claims 1-3, 6, 9-12, and 15-17).

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 9, 10, 28, 29, 47, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,983,366 to King in view of U.S. Patent No. 6,282,701 to Wygodny et al.

As per claims 9 and 10, King discloses a method of printing data from an application, comprising the steps of: invoking a print function with a format argument from the application (trace definition and trace information; column 14, lines 1-22; see column 18, lines 42-50); saving the format argument in a deferred trace data buffer (packed message; see column 19, lines 40-44); returning to the application that invoked the print function (continuing execution); then processing the deferred trace data buffer to print the format argument (causing an output of the print messages; see column 18, lines 38-64; and Fig. 5). King fails to expressly disclose the format argument being a pointer to a memory location in an address space of the application, and

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saving the pointer in the deferred trace data buffer. However, Wygodny et al. teach displaying a pointer (for example, variable names) and the contents of the memory referred to by the pointer as part of a trace output display (see Fig. 11; and column 20, lines 1-26). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include a pointer as a format argument as per the teachings of Wygodny et al. One would be motivated to do so to be able to display the memory locations stored in pointer variables in a trace output.

As per claims 28, 29, 47, and 48, these are system and computer readable medium versions of the claimed method discussed above (claims 9 and 10), wherein all claim limitations also have been addressed as set forth above. King further discloses a system and a computer-readable medium for performing the aforementioned method steps (see Figs. 4 and 5). Therefore, for reasons stated above, such claims also would have been obvious.

10. Claims 11-14, 30-33, and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over King in view of Wygodny et al. as applied to claim 10 above, and further in view of Keith Bugg, "Debugging Visual C++ Windows; Chapter 3: The Visual C++ Debugging Environment," 1998 (hereinafter Bugg).

As per claim 11, King and Wygodny teach such a method (see the disclosure and teachings applied above to claim 10), but King further fails to expressly disclose saving a contents of the memory location in the address space of the application that is referenced by the pointer in the deferred trace data buffer; and processing the deferred trace data buffer to print the contents of the memory location in the address space of the application that is referenced by the

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pointer. However, Bugg teaches using the format pointer to reference a string for an output message (see the second-to-last paragraph of page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include saving and printing the contents of the memory referenced by the pointer as per the teachings of Bugg. One would be motivated to do so to allow for efficient access to character string data.

As per claim 12, in addition to the teachings applied above, King further discloses the step of saving the format argument and the at least one data argument in the deferred trace buffer and the step of processing the deferred trace buffer to print the at least one data argument are performed in different execution threads (see column 19, lines 57-62). Therefore, for reasons stated above, such a claim also would have been obvious.

As per claim 13, King further fails to expressly disclose saving the deferred trace data buffer to a non-volatile storage medium. However, Bugg further teaches sending debugging output, including format and data arguments to a file, a debugger, and/or a message window (see “_CrtDbgReport()” on page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of King to include saving the deferred trace data buffer to a non-volatile storage medium (such as a file) as per the teachings of Bugg. One would be motivated to do so to have the ability to store debugging reports for later transmission or viewing.

As per claim 14, King further discloses the step of saving the format argument and the at least one data argument being performed on a first computing machine and the step of processing the deferred trace data buffer to print the at least one data argument is performed on a second

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computing machine, the second computing machine being different from the first computing machine (see Fig. 4; and column 13, lines 17-28) and having access to the address space of the application via the non-volatile storage medium (compiling a trace control table into the data processing system application program; see column 15, line 65 through column 16, line 9).

Therefore, for reasons stated above, such a claim also would have been obvious.

As per claims 30-33 and 49-52, these are system and computer readable medium versions of the claimed methods discussed above (claims 11-14), wherein all claim limitations also have been addressed as set forth above. King further discloses a system and a computer-readable medium for performing the aforementioned method steps (see Figs. 4 and 5). Therefore, for reasons stated above, such claims also would have been obvious.

11. Claims 4, 5, 23, 24, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the DSP/BIOS documents (see the rejection under 35 U.S.C. § 102(a), *supra*) in view of Dominic Morris, "Z88 Development Kit: A Small C+ Compiler for Z80 based Machines," April 17, 2000 [online], [accessed 07/26/2006], Retrieved from Internet <URL: <http://z88dk.sourceforge.net/old/zcc.html>>, (13 pages) (hereinafter "[Mor2000]").

As per claims 4 and 5, the DSP/BIOS is disclosed as saving the at least one data argument in the deferred trace data buffer (see, e.g., *Id.* at "6-47" ("LOG_printf copies a sequence number, the format address, and two arguments to the specified log's buffer")); and processing the deferred trace data buffer to print the at least one data argument (The host

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processes the format string and arguments of the LOG_printf operation to display (print) the formatted data. See, e.g., *Id.* at “3-5” and “3-6”). The DSP/BIOS is not expressly disclosed as performing these operations after determining that a deferred print flag has been set. However, [Mor2000] teaches a flag (“-smartpf”) that is used to specify which of two “printf” commands to use at a given point in a program: a normal printf (which is slower but has additional features) and a miniprintf (which is faster but has fewer features) (see [Mor2000] at 9). In the method disclosed by the DSP/BIOS documents, there are likewise two “printf” commands available: a normal printf and a deferred printf (LOG_printf) (which is smaller and faster (see, e.g., [MauR1999] at 6), but has fewer features—it only supports 0, 1, or 2 arguments after the format string ([UG1999] at “6-49”) and it only supports integer, string, and pointer arguments ([UG1999] at “6-48”)). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to modify the method disclosed by the DSP/BIOS documents to include a flag to switch between the different available printf statements as per the teachings of [Mor2000]. One would be motivated to do so to gain the advantages of providing automatic substitution (by the compiler) of the faster version of the printf operation wherever possible while maintaining the ability to manually override this feature when necessary (see [Mor2000] at 9).

As per claims 23 and 24, these are system versions of the claimed methods discussed above (claims 4 and 5, respectively). The DSP/BIOS firmware is further disclosed as being implemented as a system (see, e.g., [Yiu2000] at 1), and all other limitations have been

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addressed as set forth above (see the discussion of claims 4 and 5). For reasons stated above, such claims also would have been obvious.

As per claims 42 and 43, these are computer readable storage media versions of the claimed methods discussed above (claims 4 and 5, respectively). The DSP/BIOS firmware is further disclosed as being implemented using such computer readable storage media (see, e.g., [Yiu2000] at 1, describing the implementation of software readable by a DSP), and all other limitations have been addressed as set forth above (see the discussion of claims 4 and 5). For reasons stated above, such claims also would have been obvious.

12. Claims 7, 8, 13, 14, 18, 19, 26, 27, 32, 33, 37, 38, 45, 46, 51, 52, 56, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over the DSP/BIOS documents (see the rejection under 35 U.S.C. § 102(a), *supra*) in view of *Bugg*.

As per claims 7, 8, 13, 14, 18, and 19, in addition to the disclosure applied above to claims 1, 11, and 16, the DSP/BIOS firmware is further disclosed as saving the deferred trace data buffer and a memory contents comprising the address space of the application (the format string address (a pointer) is put in register *b6* and used as the third value for a call to *LOG_event()*; see, e.g., [UG1999] at “6-46” through “6-48”; *Id.* at “6-47” (“LOG_printf copies a sequence number, the format address, and two arguments to the specified log’s buffer”)). Further, the DSP/BIOS firmware system’s step of saving the format argument and the at least one data argument in the deferred trace data buffer is performed on a first computing machine and the step of processing the deferred trace data buffer to print the at least one data argument is performed on a second computing machine, the second computing machine being different from

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the first computing machine and having access to the address space of the application via the buffer (the saving of the format argument (into a 4-word log message) is carried out on the DSP and the processing and printing are carried out on the host. See, e.g., [UG2000] at “3-5” and “3-6”). The DSP/BIOS firmware is not expressly disclosed as saving such information in a non-volatile storage medium. However, Bugg teaches sending debugging output, including format and data arguments to a file, a debugger, and/or a message window (see “_CrtDbgReport()” on page 2). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method disclosed by the DSP/BIOS documents to include saving the deferred trace data buffer to a non-volatile storage medium (such as a file) as per the teachings of Bugg. One would be motivated to do so to have the ability to store debugging reports for later transmission or viewing.

As per claims 26, 27, 32, 33, 37, and 38, these are system versions of the claimed methods discussed above (claims 7, 8, 13, 14, 18, and 19, respectively). The DSP/BIOS firmware is further disclosed as being implemented as a system (see, e.g., [Yiu2000] at 1), and all other limitations have been addressed as set forth above (see the discussion of claims 7, 8, 13, 14, 18, and 19). For reasons stated above, such claims also would have been obvious.

As per claims 45, 46, 51, 52, 56, and 57, these are computer readable storage media versions of the claimed methods discussed above (claims 7, 8, 13, 14, 18, and 19, respectively). The DSP/BIOS firmware is further disclosed as being implemented using such computer readable storage media (see, e.g., [Yiu2000] at 1, describing the implementation of software readable by a DSP), and all other limitations have been addressed as set forth above (see the

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discussion of claims 7, 8, 13, 14, 18, and 19). For reasons stated above, such claims also would have been obvious.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


14. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (571) 272-3699. The Examiner can normally be reached on Tue. - Fri., 7:00 am - 4:30 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature should be directed to the TC 2100 Group receptionist: 571-272-2100.

EBK / EBK
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